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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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EXAMINER

ZHU, JERRY

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 12/23/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/875,434

Applicant(s)

DENG ET AL.

Examiner

Jerry Zhu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. §101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-7 are directed to non-statutory subject matter. They are not claimed to be practiced on a computer or any other concrete and tangible technology, therefore, it is clear that the claims are not limited to practice in the technological arts. On that basis alone, they are clearly nonstatutory.
2. Regardless of whether any of claims 1-7 are in the technological arts, none of them is limited to practical applications in the technological arts. The examiner finds that *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) controls the 35 USC §101 issues on that point for reasons made clear by the Federal Circuit in *AT&T Corp. v. Excel Communications, Inc.*, 50 USPQ2d 1447 (Fed. Cir. 1999). Specifically, the Federal Circuit held that the act of:

...[T]aking several abstract ideas and manipulating them together adds nothing to the basic equation. *AT&T v. Excel* at 1453 quoting *In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994).

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The examiner finds that Applicant's "sequential progression of decision making, algorithm, learning" references are just manipulations of mathematic algorithms in tree like structure is just an abstract idea.

3. The examiner bases his position upon guidance provided by the Federal Circuit in *In re Warmerdam*, as interpreted by *AT&T v. Excel*. This set of precedents is within the same line of cases as the *Alappat-State Street Bank* decisions and is in complete agreement with those decisions.

Warmerdam is consistent with *State Street*'s holding that:

Today we hold that *the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price*, constitutes a practical application of a mathematical algorithm, formula, or calculation because it produces 'a useful, concrete and tangible result' -- *a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.* (emphasis added) *State Street Bank* at 1601.

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4. True enough, that case later eliminated the “business method exception” in order to show that business methods were not per se nonstatutory, but the court clearly *did not* go so far as to make business methods *per se statutory*. A plain reading of the excerpt above shows that the Court was *very specific* in its definition of the new *practical application*. It would have been much easier for the court to say that “business methods were per se statutory” than it was to define the practical application in the case as “...the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price...”
5. Additionally, the court was also careful to specify that the “useful, concrete and tangible result” it found was “a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.” (i.e. the trading activity is the further practical use of the real world monetary data beyond the transformation in the computer - i.e., “post-processing activity”.)
6. Applicant cites no such specific results to define a useful, concrete and tangible result. Neither does Applicant specify the associated practical application with the kind of specificity the Federal Circuit used.
7. Furthermore, in the case *In re Warmerdam*, the Federal Circuit held that:

... [T]he dispositive issue for assessing compliance with Section 101 in this case is whether the claim is for a process that goes beyond simply manipulating 'abstract ideas' or 'natural phenomena' ... As the Supreme Court has made clear, '[a]n idea of itself is not patentable, ... taking several abstract ideas and manipulating them together adds nothing to the basic equation. In re Warmerdam 31 USPQ2d at 1759 (emphasis added).

8. Since the Federal Circuit held in *Warmerdam* that this is the "dispositive issue" when it judged the usefulness, concreteness, and tangibility of the claim limitations in that case, the examiner in the present case views this holding as the dispositive issue for determining whether a claim is "useful, concrete, and tangible" in similar cases. Accordingly, the Examiner finds that Applicant manipulated a set of abstract ideas "a plurality of classification nodes" to solve purely algorithmic problems in the claims. Clearly, these classification nodes indicated in claims 1-7 are merely organizing pure "mathematical algorithms" which the Supreme Court has held are per se nonstatutory - in fact, it *includes* the expression of nonstatutory mathematical algorithms.
9. Since the claims are not limited to exclude such abstractions, the broadest reasonable interpretation of the claim limitations includes such abstractions. Therefore, the claims are impermissibly abstract under 35 U.S.C. 101.

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10. Since *Warmerdam* is within the *Alappat-State Street Bank* line of cases, it takes the same view of “useful, concrete, and tangible” the Federal Circuit applied in *State Street Bank*. Therefore, under *State Street Bank*, this could not be a “useful, concrete and tangible result”. There is only manipulation of abstract ideas.
11. The Federal Circuit validated the use of *Warmerdam* in its more recent *AT&T Corp. v. Excel Communications, Inc.* decision. The Court reminded us that:

Finally, the decision in *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) is not to the contrary. *** The court found that the claimed process did nothing more than manipulate basic mathematical constructs and concluded that ‘taking several abstract ideas and manipulating them together adds nothing to the basic equation’; hence, the court held that the claims were properly rejected under §101 ... Whether one agrees with the court’s conclusion on the facts, the holding of the case is a straightforward application of the basic principle that mere laws of nature, natural phenomena, and abstract ideas are not within the categories of inventions or discoveries that may be patented under §101. (emphasis added) *AT&T Corp. v. Excel Communications, Inc.*, 50 USPQ2d 1447, 1453 (Fed. Cir. 1999).

12. Remember that in *In re Warmerdam*, the Court said that this was the dispositive issue to be considered. In the *AT&T* decision cited above, the Court reaffirms that this is the issue for assessing the “useful, concrete, and tangible” nature of a set of claims under section 101. Accordingly, the examiner views the *Warmerdam* holding as the dispositive issue in this analogous case.
13. The fact that the invention is merely the manipulation of *abstract ideas* is clear. The data referred to by Applicant’s phrase “classification tasks” is

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simply an abstract construct that does not limit the claims to the transformation of real world data (such as monetary data or heart rhythm data) by some disclosed process. Consequently, the necessary conclusion under *AT&T*, *State Street* and *Warmerdam*, is straightforward and clear. The claims take several abstract ideas (i.e., "algorithm for each of classification tasks" in the claims) and manipulate them together adding nothing to the basic equation. Claims 1-7 are, thereby, rejected under 35 U.S.C. 101.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claims 1-7 are rejected under 35 USC 112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a 101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed *how* to practice the *undisclosed* practical application. This is how the MPEP puts it:

("The how to use prong of section 112 incorporates as a matter of law the requirement of 35 U.S.C. 101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of fact to satisfy 35 U.S.C. § 101, then the application also fails as a matter of law to enable one of

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ordinary skill in the art to use the invention under 35 U.S.C. § 112."); In re Kirk, 376 F.2d 936, 942, 153 USPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, **otherwise an applicant would anomalously be required to teach how to use a useless invention.**"). See, MPEP 2107.01(IV), quoting In re Kirk (emphasis added).

Therefore, claims 1-7 are rejected on this basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

15. Claim 9, 14-15, 17, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Shaffer. Specifically

Claim 9

16. Shaffer teaches a method of categorizing files of non-textual data comprising the steps of:
- establishing a sequential progression of decision making using automated processing techniques to define a dependent arrangement

of steps (which are equivalent to task nodes) that assign classes to a data file. Some of the nodes have algorithms for determining next step of progression (para29, lines 6-20; para31, lines 28-57). (The processing goal at each step would include assigning classes to the steps or nodes, and determining what is next step or node of the progression. The processing modules are equivalent to the algorithms at the nodes.) . Some of the classification nodes have a plurality of software algorithms whose operations include grouping, processing metadata and image data (para31, lines 55-65)

- receiving a file of non-textual data (para 25, lines 21-24)
- processing a file of non-textural subject data through the sequential progression of decision making to selectively identify a plurality of classifiers associated with the file of non-textual subject data (para 32).

Claims 14

17. Shaffer teaches a method for classifying a data file at a classifying node comprising the steps:

- Subjecting an image data file to a transformation function to generate transformed image data (para 31, lines 61-64)
- Performing feature analysis (para 28)
- Applying an algorithm routine to generate a class identifiable (para 32)

Claim 15

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18. Shaffer teaches selecting algorithm routine from a plurality of algorithm routines (para31, lines 55-65).

Claim 17

19. Shaffer teaches selection of algorithmic routine based on the determination of previous classification task (para29, lines 6-20).

Claim 18

20. Shaffer teaches the step of performing feature analysis (para 31, lines 61-64)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 1, 8, 10-13 and 16 are rejected under 35 U.S.C. 103(a) as being obvious over Shaffer et, al. U.S. Pub. No. 2001/0046330 (Shaffer) in view of Wical et, al. U.S. Pat. No. 6101515 (Wical).

Claim 1

22. Shaffer discloses a system for classifying subject data (para 25, lines 1-6) comprising:

- a sequential progression of decision making with processing modules at each step of the progression to satisfy processing goal of that step (para29, lines 6-20; para31, lines 28-57). (The processing steps are equivalent to classification nodes. The processing goal at each step would include assigning classes to the steps or nodes, and determining what is next step or node of the progression. The processing modules are equivalent to the algorithms at the steps or nodes.)
- a variety of software algorithms whose operations include grouping, processing metadata and image data(para31, lines 55-65). (Sub-algorithms, such as performing image analysis, can be considered as one class of algorithms called by another class of algorithms.)

Shaffer fails to teach a learning procedure for modifying the arrangement of classification tasks.

Wical teaches a learning system that provides automated means for learning words and phrases from a set of documents by classifying the terms in categories of a classification system (col. 3, lines 13-67; col. 4,

lines 1-40). The terms derived from meta-data and image analysis can be used as words and phrases for learning to determine classification parameters and classifiers. One of ordinary skill in the art would have provided the learning system taught by Wical, for the purpose of automating the learning procedure to classify the terms into categories of a classification system. As a result it would have been obvious to one of ordinary skill in the art at the time of applicants' invention to modify the system taught by Shaffer by adding the learning system as taught by Wical.

Claim 8

23. Shaffer discloses a system for classifying subject data that includes a recording device for capturing non-textual subject data (para 25, lines 21-24) and for recording meta-data, the meta-data being specific to an operational mode of the recording device during capturing of the non-textual subject data (para 27, lines 14-23);

Claim 10-12

24. Shaffer teaches grouping images by image content and metadata as stated in claim 9. Shaffer does not teach a learning procedure. However, Wical teaches a learning system that provides automated means to extract and process learning words and phrases from a set of

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documents by classifying them in categories of a classifications system (col. 3, lines 13-67; col. 4, lines 1-40) comprising:

- extracts content-based data (col. 20, lines 36-56) from a set of documents.
- generates learning classes that are descriptive to training images through content analysis. (col. 7, lines 23-52) (col. 8, lines 23-46) (Wical analyzes content using content processing system, generates learning classes using knowledge catalog that maybe semantic and lexical derivatives)
- dynamically modifying sequential progression of decision making and monitoring and adjusting the determinations of classification (col. 2, lines 15-27).
- One of ordinary skill in the art would have provided the learning procedure of Wical using a plurality of learning images, for purpose of establishing a learning classification system. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the learning procedure of Wical using a plurality of learning images, for purpose of establishing a learning classification system to recognize a query image.

Claim 13

25. Shaffer teaches the step of performing the automated processing includes assigning a semantic expression to the non-textual data for use at least

one descriptor for one of organizing file (para40, lines 7-23) and matching a query during a search for said file (para 34, lines 8-31).

Claim 16

26. Shaffer teaches algorithm for generating class (para29, lines 6-20) (one of the processing goals of for that step or node would be to assign a class to the node). Shaffer does not teach learning procedure. Wical teaches a learning system that provides automated means for learning words and phrases from a set of documents by classifying the terms in categories of a classifications system (col. 3, lines 13-67; col. 4, lines 1-40). It would be obvious for an ordinary skill in the art to combine Shaffer and Wical to define an algorithm that integrate the learning procedure into the algorithm to generate class based on training images.

27. Claims 2-7 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Shaffer in view of Wical as set forth in the rejection of claims 1, 8 and 10 above, and further in view of Provino et al. U.S. Pat. No. 5,778,384 (Provino).

Claim 2-7

28. Provino discloses a system and method for facilitating the access of file systems or storage systems in network environment comprising:

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- network (which include remote network such as the Internet) access module that initiates access operation in connection with the portion of the remote file system (col. 3, lines 16-22).
- communication module for communicating between computer software modules (col. 10, lines 38-44)
- means for storing and accessing data or files (col. 5, lines 57-64)
- application programs whose purpose is to perform word processing, database management, process control to identify proper sequence of modules to execute, and numerous other functions such as graphic user interface programs (col.1, lines 43-62)

It would have been obvious for one of ordinary skills in the art at the time of the invention by applicant to combine Shaffer's subject data classifying system, Wical's data classification learning system, and Provino's file storage remote management system for the purpose of identifying proper sequence of module to execute and to provide classification of data.

Conclusion

The following references are considered to be pertinent to applicant 's disclosure. Wical is cited to show sequential progression of decision making when query a database. Sakou is cited to show non-textual base data. Normile shows a system and method for video image classification. Sethi shows apparatus and method for designing decision tree classifiers for use in artificial

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applications. Sakakilbara is cited to build a classification decision tree in the document data classification system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Zhu whose telephone number is (571) 2724237. The examiner can normally be reached on 8:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jerry Zhu
Examiner
Art Unit - 2121
Monday, December 06, 2004



Anthony Knight
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